## SEQUENCE LISTING

13

2,1

<110> BOMMARIUS, ANDREAS DRAUZ, KARLHEINZ VERSECK, STEFAN KULA, MARIA-REGINA <120> ACETYL AMINO ACID RACEMASE FROM AMYCOLATOPSIS ORIENTALIS FOR RACEMIZING CARBAMOYL AMINO ACIDS <130> 214382US0X <150> DE 10050124.9 <151> 2000-10-11 <160> 2 <170> PatentIn version 3.1 <210> 1 <211> 1107 <212> DNA \* <213> Amycolatopsis orientalis fu ¥ <220> La <221> CDS ⑤ <222> (1)..(1107) <223> <400> 1 gtg aaa etc age ggt gtg gaa etg ege egg gte egg atg eeg etc gtg Val Lys Leu Ser Gly Val Glu Leu Arg Arg Val Arg Met Pro Leu Val gee eeg tte egg aeg teg tte ggg aeg eag tee gag egg gaa ttg etg 96 Ala Pro Phe Arg Thr Ser Phe Gly Thr Gln Ser Glu Arg Glu Leu Leu etg gte ege geg gtg ace eeg geg gge gag gge tgg gge gaa tgt gte 144 Leu Val Arg Ala Val Thr Pro Ala Gly Glu Gly Trp Gly Glu Cys Val 35 geg atg gag geg eeg ete tac teg teg gag tac aac gae gee gee gag 192 Ala Met Glu Ala Pro Leu Tyr Ser Ser Glu Tyr Asn Asp Ala Ala Glu 50 cac gtg ctg cgg aac cat ctg atc ccc gca ctg ctg gcg gcc gag gac 240 His Val Leu Arg Asn His Leu Ile Pro Ala Leu Leu Ala Ala Glu Asp 65 gtg acc gcg cac aag gtg acg ccg ttg ctg gcg aag ttc aag ggc cac 288 Val Thr Ala His Lys Val Thr Pro Leu Leu Ala Lys Phe Lys Gly His cgg atg gcg aag ggc gcg ctg gag atg gcg gtc ctc gac gcc gaa ctc

Arg Met Ala Lys Gly Ala Leu Glu Met Ala Val Leu Asp Ala Glu Leu

336

	cgc Arg	gcg Ala	cat His 115	gac Asp	cgg Arg	tcc	ttc Phe	gcg Ala 120	gcc Ala	gag Glu	ctg Leu	gly ggg	tcc Ser 125	act Thr	cgc Arg	gac Asp	384
	tcc Ser	gtg Val 130	gcc Ala	tgc Cys	gly gag	gtc Val	tcg Ser 135	gtc Val	ggg ggg	atc Ile	atg Met	gac Asp 140	tcg Ser	atc Ile	ccg Pro	cac His	432
	ctg Leu 145	ctc Leu	gac Asp	gtc Val	gtc Val	ggc Gly 150	ggc Gly	tac Tyr	ctc Leu	gac Asp	gag Glu 155	ggc Gly	tac Tyr	gtc Val	cgg Arg	atc Ile 160	480
	aag Lys	ctg Leu	aag Lys	atc Ile	gag Glu 165	ccc Pro	ggc Gly	tgg Trp	gac Asp	gtc Val 170	gag Glu	ccg Pro	gtc Val	cgg Arg	cag Gln 175	gtg Val	528
-	cgt Arg	gag Glu	cgc Arg	ttc Phe 180	ggt Gly	gac Asp	gac Asp	gtg Val	ctg Leu 185	ctg Leu	cag Gln	gtc Val	gac Asp	gcg Ala 190	aac Asn	acc Thr	576
	gcg Ala	tac Tyr	acg Thr 195	ctg Leu	ggc Gly	gac Asp	gcg Ala	ccc Pro 200	ctg Leu	ctg Leu	tcc Ser	cgg Arg	ctc Leu 205	gac Asp	ccg Pro	ttc Phe	624
	gac Asp	ctg Leu 210	ctg Leu	ctg Leu	atc Ile	gag Glu	cag Gln 215	ccg Pro	ctc Leu	gaa Glu	gaa Glu	gag Glu 220	gac Asp	gtg Val	ctc Leu	ggc	672
	cac His 225	gcc Ala	gag Glu	ctg Leu	gcc Ala	aag Lys 230	cgg Arg	atc Ile	cgg Arg	acg Thr	ccg Pro 235	atc Ile	tgc Cys	ctc Leu	gac Asp	gag Glu 240	720
	tcg Ser	atc Ile	gtc Val	tcg Ser	gcc Ala 245	aag Lys	gcc Ala	gcc Ala	gcg Ala	gac Asp 250	gcg Ala	atc Ile	aag Lys	ctc Leu	ggc Gly 255	gec Ala	768
	tgc Cys	cag Gln	atc Ile	gtc Val 260	aac Asn	atc Ile	aaa Lys	ccg Pro	ggc Gly 265	cgg Arg	gtc Val	ggc Gly	gga Gly	tac Tyr 270	ctc Leu	gaa Glu	816
	gcc Ala	cgc Arg	cgg Arg 275	gtg Val	cac His	gac Asp	gtc Val	tgc Cys 280	gcg Ala	gca Ala	cac His	gly agg	atc Ile 285	gcg Ala	gtg Val	tgg Trp	864
	tgc Cys	ggc Gly 290	gly 999	atg Met	atc Ile	gag Glu	acc Thr 295	gly ggg	ctc Leu	ggc Gly	cgg Arg	gcg Ala 300	gcc Ala	aac Asn	gtc Val	gca Ala	912
	ctg Leu 305	gcc Ala	tcg Ser	Leu	Pro	ggc Gly	Phe	acg Thr	ctg Leu	Pro	ggg Gly	gac Asp	acc Thr	tcg Ser	gcg Ala	tcc Ser	960

ggc cgg ttc tat cgc acc gac atc acc gag ccg ttc gtg ctg gac gcc Gly Arg Phe Tyr Arg Thr Asp Ile Thr Glu Pro Phe Val Leu Asp Ala

	glà aaa	Cat	ctg Leu	pro 340	Val	ccg Pro	acc	gly ggg	ccg Pro 345	ggc Gly	ctc Leu	Gly aaa	gtg Val	act Thr 350	ccg Pro	att Ile	1056
	ccg Pro	gat Asp	Leu 355	Leu	gac	gag Glu	gtc Val	acc Thr 360	Thr	gag Glu	aaa Lys	gcg Ala	tgg Trp 365	atc Ile	ggt Gly	tcg Ser	1104
	tag																1107
od Sull	<21 <21 <21 <21	1> 2>	2 368 PRT Amyc	olat	opsi	s or	ient	alis									
See thalf	<40	0 >	2														
Tr siene form &	Val 1	Lys	Leu	Ser	Gly 5	Val	Glu	Leu	Arg	Arg 10	Val	Arg	Met	Pro	Leu 15	Val	
A Service	Ala	Pro	Phe	Arg 20	Thr	Ser	Phe	Gly	Thr 25	Gln	Ser	Glu	Arg	Glu 30	Leu	Leu	
And the the the	Leu	Val	Arg 35	Ala	Val	Thr	Pro	Ala 40	Gly	Glu	Gly	Trp	Gly 45	Glu	Cys	Val	
i e	Ala	Met 50	Glu	Ala	Pro	Leu	Tyr 55	Ser	Ser	Glu	Tyr	Asn 60	Asp	Ala	Ala	Glu	
	His 65	Val	Leu	Arg	Asn	His 70	Leu	Ile	Pro	Ala	Leu 75	Leu	Ala	Ala	Glu	Asp 80	
	Val	Thr	Ala	His	Lys 85	Val	Thr	Pro	Leu	Leu 90	Ala	Lys	Phe	Lys	Gly 95	His	
	Arg	Met	Ala	Lys 100	Gly	Ala	Leu	Glu	Met 105	Ala	Val	Leu	Asp	Ala 110	Glu	Leu	
	Arg	Ala	His 115	Asp	Arg	Ser	Phe	Ala 120	Ala	Glu	Leu	Gly	Ser 125	Thr	Arg	Asp	
	Ser	Val 130	Ala	Cys	Gly	Val	Ser 135	Val	Gly	Ile	Met	Asp 140	Ser	Ile	Pro	His	
	Leu 145	Leu	Asp	Val	Val	Gly 150	Gly	Tyr	Leu	Asp	Glu 155	Gly	Tyr	Val	Arg	Ile 160	

- Lys Leu Lys Ile Glu Pro Gly Trp Asp Val Glu Pro Val Arg Gln Val 165 \$170\$
- Ala Tyr Thr Leu Gly Asp Ala Pro Leu Leu Ser Arg Leu Asp Pro Phe 195 200 205
- Asp Leu Leu Ile Glu Glu Pro Leu Glu Glu Glu Asp Val Leu Gly 210 225
- Ser Ile Val Ser Ala Lys Ala Ala Ala Asp Ala Ile Lys Leu Gly Ala
  245 250 255
- Cys Gln Ile Val Asn Ile Lys Pro Gly Arg Val Gly Gly Tyr Leu Glu
- Ala Arg Arg Val His Asp Val Cys Ala Ala His Gly Ile Ala Val Trp 275 280 285
  - Cys Gly Gly Met Ile Glu Thr Gly Leu Gly Arg Ala Ala Asn Val Ala 290 295
  - Leu Ala Ser Leu Pro Gly Phe Thr Leu Pro Gly Asp Thr Ser Ala Ser 305 \$310\$ \$315
  - Gly Arg Phe Tyr Arg Thr Asp Ile Thr Glu Pro Phe Val Leu Asp Ala 325 330 335
  - Gly His Leu Pro Val Pro Thr Gly Pro Gly Leu Gly Val Thr Pro Ile 340 345 350
  - Pro Asp Leu Leu Asp Glu Val Thr Thr Glu Lys Ala Trp Ile Gly Ser 355 360 365